

REMARKS

An excess claim fee payment letter is submitted herewith for one (1) excess independent claim.

Claims 9-11, 23-25, 33, and 35-41 are all the claims presently pending in the application.

Claims 1-8, 12-22, 26-32, and 34 were canceled without prejudice or disclaimer in the Preliminary Amendment filed on November 17, 2003 to allow for prosecution of claims 9-11, 23-25, and 33 (non-elected in the parent application U.S. Serial No. 09/664,719, now U.S. Patent No. 6,667,782 B, due to the Examiner's Restriction Requirement).

Claims 9-11, 23-25, and 33 have been amended to define more clearly the features of the present invention.

New claims 35-41 have been added to provide more varied protection for the present invention. No new matter has been added.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicants specifically state that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 9, 11, and 33 stand rejected under 35 U.S.C. § 102(b) as being anticipated by PCT/US95/04424 to Winston (hereinafter "PCT '424"). Claims 10 and 23-25 stand rejected under 35 U.S.C. § 103(a) as being obvious over PCT '424.

These rejections are respectfully traversed in the following discussion.

I. THE CLAIMED INVENTION

In an illustrative, non-limiting aspect of the present application, as defined by independent claim 9, a backlight apparatus includes a wedge-type light guide including a refractive index n_1 , and including a top surface, a bottom surface and a side surface, a light source for directing light to the side surface of the wedge-type light guide, a light transmission layer including a refractive index n_2 , which is smaller than the refractive index n_1 , and including a top surface and a bottom surface, wherein the bottom surface of the light transmission layer is attached to the top surface of the wedge-type light guide, and a plurality of prisms attached on the top surface of the light transmission layer for directing the incident light from the light transmission layer toward a light path along a direction of a normal line of the top surface of the light transmission layer and for controlling an angle spread of the incident light from the top surface of the light-transmission layer.

Independent claims 23 and 33 recite somewhat similar features as independent claim 1. Particularly, the exemplary aspects of independent claims 23 and 33 also disclose controlling an angle spread of the incident light from the top surface of the light-transmission layer.

In conventional devices, it is very difficult to obtain the light emitted with a narrow angle spread (e.g., an angle spread less than 10 degrees FWHM (Full Width at Half Maximum); see specification at page 2, lines 21-23; all reference numerals herein being used for the Examiner's clarity only and not for limiting the claims).

The claimed invention (as defined, for example, by independent claim 9), on the other hand, is capable of directing the light from the light transmission layer with a narrow angle spread (e.g., "the light is directed to the polarizer 27 with the narrow angle spread", see Figure 7; see also, specification at page 24, lines 11-13).

II. THE PRIOR ART REJECTIONS

A. Claims 9, 11, and 33 stand rejected under 35 U.S.C. § 102(b) as being anticipated by PCT '424.

The Examiner alleges that PCT '424 discloses all of the features of the claimed invention. However, Applicants respectfully submit that PCT '424 does not disclose or suggest all of the novel and unobvious features of the present invention.

Particularly, the Examiner alleges that PCT '424 teaches a backlight apparatus comprising a wedge-type light guide having a refractive index n_1 (allegedly shown by wedge 206 in Figure 38, page 18 last full paragraph, $n_1=1.49$ and page 66), and having a top surface, a bottom surface and a side surface (allegedly inherent), a light source for directing light to the side surface of the wedge-type light guide (allegedly shown by reference numeral 217), a light transmission layer having a refractive index n_2 , which is smaller than the refractive index n_1 (allegedly shown by the converter 226, at page 18 last full paragraph ($n_2=1.35$) and Figure 28), and having a top surface and a bottom surface (allegedly inherent). The Examiner further asserts that PCT '424 shows that the bottom surface of the light transmission layer is attached to the top surface of the wedge-type light guide (allegedly shown by Figure 28), and a plurality of prisms attached on the top surface of the light transmission layer (allegedly shown by reference numeral 224 in Figure 28).

For the following reasons, Applicants respectfully disagree with the Examiner's position, and therefore, traverse this rejection.

Independent claim 9 recites, *inter alia*, a backlight apparatus comprising:

a wedge-type light guide comprising a refractive index n_1 , and comprising a top surface, a bottom surface and a side surface;
a light source for directing light to said side surface of said wedge-type light guide;

a light transmission layer comprising a refractive index n_2 , which is smaller than said refractive index n_1 , and comprising a top surface and a bottom surface, wherein said bottom surface of said light transmission layer is attached to said top surface of said wedge-type light guide; and

a plurality of prisms attached on said top surface of said light transmission layer for directing the incident light from said light transmission layer toward a light path along a direction of a normal line of said top surface of said light transmission layer and for controlling an angle spread of said incident light from the top surface of said light-transmission layer (emphasis added).

Accordingly, the claimed invention is capable of directing the light from the light transmission layer with a narrow angle spread (e.g., “the light is directed to the polarizer 27 with the narrow angle spread”, see Figure 7; see also, specification at page 24, lines 11-13).

In this way, Applicants discloses that “the light is entered from the light source 20 to the wedge-type light guide 22, then is entered into the light transmission layer 23 after several total internal reflections in the light guide 22, then is entered into the prism sheet 34, then is deflected along the normal direction of the surface of the LCD panel 29, and is finally emitted from the prism sheet 34, in the direction along the normal line of the LCD panel 29, to the polarizer 27 and the LCD panel 29 (e.g., see specification at page 24, lines 14-19).

In comparison, Applicants submit that the light redirecting layer 224 of Figure 28A of PCT ‘424 is directed to broadening the angle of light distribution, not narrowing the angle spread, as in the claimed invention, such that the light is emitted from the prism in a direction along the normal line of the LCD.

Particularly, Applicants submit that PCT '424 states that "[t]he light redirecting layer 224 includes curved microprismatic facets 318 to broaden the angle of light distribution in the xz plane" (see PCT '424 at page 66, lines 6-9).

For the foregoing reasons, Applicants respectfully submit that PCT '424 does not disclose or suggest all of the novel and unobvious features of the present invention. Thus, PCT '424 does not anticipate, or render obvious, the claimed invention.

Accordingly, the Examiner respectfully is requested to withdraw the rejection of claims 9, 11, and 33 and permit these claims to pass to immediate allowance.

B. Claims 10 and 23-25 stand rejected under 35 U.S.C. § 103(a) as being obvious over PCT '424.

Applicants submit that claims 10 and 23-25 are patentable over PCT '424 for somewhat similar reasons as those set forth above.

Therefore, the Examiner is requested to withdraw this rejection and permit claims 10 and 23-25 to pass to immediate allowance.

III. NEW CLAIMS

New claims 35-41 are added to provide more varied protection for the present invention as described in the original specification and claims.

Applicants submit that claims 35-41 are patentable over the cited reference for somewhat similar reasons as those set forth above.

Accordingly, Applicants request that the Examiner permit claims 35-41 to pass to immediate allowance.

IV. CONCLUSION


In view of the foregoing, Applicants submit that claims 9-11, 23-25, 33, and 35-41, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Assignee's Deposit Account No. 50-0510.

Respectfully Submitted,

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John J. Dresch, Esq.
Registration No. 46,672

Sean M. McGinn, Esq.
Registration No. 34,386

McGinn & Gibb, PLLC
8321 Old Courthouse Road, Suite 200
Vienna, VA 22182-3817
(703) 761-4100
Customer No. 21254